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SGS-THOMSON MICROELECTRONICS

2N5320 2N5321

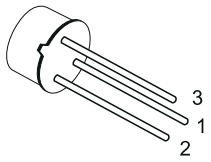
SMALL SIGNAL NPN TRANSISTORS

- SILICON EPITAXIAL PLANAR NPN TRANSISTORS
- MEDIUM POWER AMPLIFIER
- PNP COMPLEMENTS ARE 2N5322 AND 2N5323

DESCRIPTION

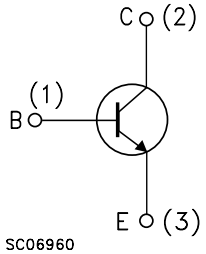
The 2N5320 and 2N5321 are silicon epitaxial planar NPN transistors in Jedec TO-39 metal case. They are especially intended for high-voltage medium power application in industrial and commercial equipments.

The complementary PNP types are respectively the 2N5322 and 2N5323



TO-39

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		2N5320	2N5321	
V_{CBO}	Collector-Base Voltage (I_E = 0)	100	75	V
V_{CEV}	Collector-Emitter Voltage (V_{BE} = 1.5V)	100	75	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	75	50	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	6	5	V
I_C	Collector Current	1.2		A
I_{CM}	Collector Peak Current	2		A
I_B	Base Current	1		A
P_{tot}	Total Dissipation at T_{amb} = 25 °C	1		W
P_{tot}	Total Dissipation at T_c = 25 °C	10		W
T_{stg}, T_j	Storage and Junction Temperature	-65 to 200		°C

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-Case	Max	17.5	$^oC/W$
$R_{thj\text{-}amb}$	Thermal Resistance Junction-Ambient	Max	175	$^oC/W$

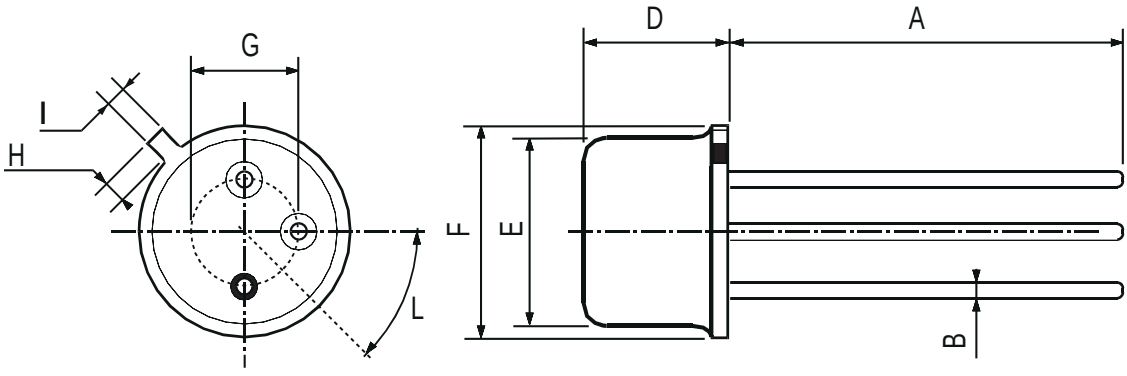
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 80 V for **2N5320** V_{CB} = 60 V for **2N5321**			0.5 5	µA µA
I_{EBO}	Collector Cut-off Current (I_C = 0)	V_{EB} = 5 V for **2N5320** V_{EB} = 4 V for **2N5321**		0.1 0.5		µA µA
$V_{(BR)CEV}$	Collector-Emitter Breakdown Voltage (V_{BE} = 1.5V)	I_C = 100 µA for **2N5320** for **2N5321**	 100 75			 V V
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = 10 mA for **2N5320** for **2N5321**	 75 50			 V V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_C = 0)	I_E = 100 µA for **2N5320** for **2N5321**	 6 5			 V V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 500 mA I_B = 50 mA for **2N5320** for **2N5321**			 0.5 0.8	 V V
V_{BE}*	Base-Emitter Voltage	I_C = 500 mA V_{CE} = 4 V for **2N5320** for **2N5321**			 1.1 1.4	 V V
h_{FE}*	DC Current Gain	for **2N5320** I_C = 500 mA V_{CE} = 4 V I_C = 1 A V_{CE} = 2 V for **2N5321** I_C = 500 mA V_{CE} = 4 V	 30 10 40		 130 250	
f_T	Transition Frequency	I_C = 50 mA V_{CE} = 4 V f = 10 MHz	50			MHz
t_{on}	Turn-on Time	I_C = 500 mA V_{CC} = 30 V I_{B1} = 50 mA			80	ns
t_{off}	Turn-off Time	I_C = 500 mA V_{CC} = 30 V I_{B1} = $-I_{B2}$ = 50 mA			800	ns

* Pulsed: Pulse duration = 300 µs, duty cycle = 1 %

TO-39 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45^{o} (typ.)					



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